

Remarks

In addition to the claims identified in the Office Action Summary as withdrawn from consideration, claims 21-23 and 55 were also withdrawn pursuant to a restriction requirement and are accordingly cancelled herein, along with withdrawn claims 15-16, 31-32, 37-39, 47-48, 53-54 and 60-69.

Terminal disclaimers are enclosed with respect to Patent Nos. 6,765,278 and 6,649,994 and to Application Serial No. 10/753,476, which corresponds to Application Publication No. 2004/0169249 referenced in this Office action, to satisfy the obviousness-type double patenting rejections and provisional rejection.

Independent claims 1, 24 and 40 were rejected under 35USC102(a,e) as anticipated by Chang et al., and under 35USC103(a) as unpatentable over Wado et al. in view of Chang et al. However, neither of these references discloses a self-sensing heater in which the same element that is heated produces an indication of its own temperature. This feature is discussed in the specification at page 6, lines 28-29 and page 23, line 18 - page 24, line 29. In Chang et al. the heating element 56 is a separate item from the temperature sensor 52, which can be a thermocouple, thermistor or RTD (Fig. 5 and column 15, line 58 - column 16, line 18). In Wado et al. a thin film heater portion 4 is a separate item from a temperature sensor 5 (Fig. 1 and column 4, lines 2-7).

Independent claims 1, 24 and 40 have been amended to recite "a heater system capable of self-sensing its own temperature", with a signal source adapted to apply an electrical activating signal to heat a W layer (conduc-

tive layer instead of W layer in claim 24), and a sensor adapted to sense the response of the W layer to the activating signal "as an indication of the temperature of said W layer, said W layer having a response to said actuating signal which varies with the W layer's temperature". Neither reference uses the same element for both heating and temperature sensing. The advantages of the present invention include a faster response time, greater sensitivity, higher temperature capability and lower drift. (Specification page 5, lines 25-29.)

The rejections of the remaining claims which depend (directly or indirectly) from independent claims 1, 24 or 40 are all based upon Chang et al. and/or Wado et al., together with additional prior art for claims 5, 19-20, 35-36 and 51-52. In view of the patentability of the independent claims, all of these dependent claims which remain in the application should now also be allowable.

The dependent claims include 12-14 and 28-30, which are directed to conductive strands distributed on the substrate. New independent claim 70 and dependent claims 71-72 have been added to address specific features of the conductive strand pattern on a rectangular AlN substrate which make possible very rapid heating (in excess of 500° C/second) to very high temperatures (in excess of 1,500° C), without cracking or otherwise breaking the substrate. (See specification page 20, line 30 - page 21, line 31 and page 25, line 31 - page 26, line 1.) The specific features recited in the new claims are disclosed at page 21, lines 16-31.

Claims 4 and 6-10 were found to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

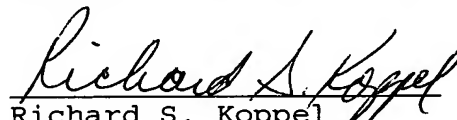
Claims 4, 6 and 9 all depend from claim 3, which in turn depends from claim 1. Rather than rewrite each of the claims 4, 6 and 9 into independent form and thereby incur an additional claims fee, the substance of claims 6 and 9 have been combined into claim 4, claim 4 has been rewritten in independent form, conforming amendments have been made to claims 7, 8 and 10, and claims 6 and 9 have been cancelled.

In addition to the cancellation of previously withdrawn claims, claims 17-18, 33-34 and 49-50 have been cancelled as redundant in view of the amendments to their parent independent claims, claims 19, 35 and 51 have been amended to depend from claims that have not been cancelled, claims 20, 36 and 52 have been amended to conform to the amendments to their parent claims, claims 42 and 44 have been amended to better conform to the language of their parent claims, a correction has been made to claims 19, 35 and 51, and claims 56-60 have been cancelled and replaced with new claims 70-72.

All of the claims remaining in the application should now be in proper form for allowance, and a Notice of Allowance is respectfully requested.

Respectfully submitted,

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Richard S. Koppel
Registration No. 26,475
Attorney for Applicant

KOPPEL, JACOBS, PATRICK & HEYBL
555 St. Charles Drive, Suite 107
Thousand Oaks, California 91360
(805) 373-0060
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